



Recommendation for Ecosystem Management Tools

Management Tools Task Group - Sustainable Ecosystem Working Group
Final - December 2003; Approved - February 2004

The details for each of the following sections are contained within the “*Guidelines for the Implementation of Ecosystem Management Tools in the Athabasca Oil Sands Region*”¹ report. The following summary information is provided.

1. BACKGROUND

1.1 Issue

Cumulative land disturbance and ecosystem fragmentation as a result of existing and planned development activities in the Regional Municipality of Wood Buffalo (RMWB).

1.2 Goal

The goal of these recommendations is to minimize land disturbance and ecosystem fragmentation during project phases from planning and exploration to operations, using management tools that have been demonstrated to be feasible in the oilsands region and other parts of the Alberta.

1.3 Rationale

There are emerging management tools that, if implemented on a broad scale within the RMWB, would help to minimize the cumulative land disturbance, ecosystem fragmentation, and impacts on sensitive sites. These tools are a subset of the eventual SEWG management system, which will contain additional management tools and best management practices to be applied to a wider range of development activities in order to meet pending SEWG management objectives.

1.4 Process to Determine the Recommendation

The recommended ecosystem management tools were determined based on a study completed in February 2002. Of the 26 tools examined, three tools have demonstrable ecosystem benefits, can be readily applied, and can be implemented immediately. The results of the February 2002 study have been supported by the SEWG and have been presented to the CEMA membership. The report titled “*Guidelines for the Implementation of Ecosystem Management Tools in the Athabasca Oil Sands Region*” provides information

¹ AXYS Environmental Consulting Ltd. and Lornel Consultants. 2002. Guidelines for the Implementation of Ecosystem Management Tools in the Athabasca Oil Sands Region. Prepared for CEMA by AXYS and Lornel. Calgary, AB



on the attributes of these three management tools and possible implementation.

The CEMA membership has been polled for consultation requirements. Communication of the management tools has been completed. The tools were communicated to the following CEMA Members:

- Northern Lights Regional Health Authority – September 16, 2003
- ATC – IRC Directors Group² – October 27, 2003
- Métis Local #125 – November 24, 2003
- CAPP – Resource Access Committee – January 13, 2004

2. RECOMMENDATION

The following three management tools have been voluntarily adopted, where applicable, by CEMA industry members in their planning and operations in the RMWB. A motion was made by SEWG that CEMA review and approves the recommendation that the three ecosystem management tools, (Minimal Impact Exploration, Integrated Landscape Management and Constraints Mapping) be implemented in the RMWB, and forwards the recommendation to the RSDS Steering Committee. SEWG further suggests the recommendation be translated into a policy or guideline. The motion was made by Judy Smith and seconded by Dennis Kohlman. The motion was carried with no blocks to consensus. **Motion carried.**

- ***Minimal Impact Exploration*** (MIE) is a field operations tool that employs construction methods that reduce the size of the footprint on terrestrial ecosystems from routine oil and gas exploration, including seismic and exploration well activities. MIE refers to the reduction of disturbance from exploration activities. MIE includes the Low Impact Seismic (LIS), based on reducing the width of line clearing techniques for geophysical operations to three metres or less, and Minimal Impact Site and Access Construction (MISAC) to reduce the effects and size of drilling operations on the landscape.
- ***Integrated Landscape Management*** (ILM) – refers to joint planning tool that coordinates industrial activities amongst developers so that a reduced footprint is created on the landscape while producing economic efficiencies and cost savings for all companies involved. ILM is a tool that can incorporate MIE and Constraints Mapping into its process. This tool can be used to coordinate activities such as road building, utility corridor location, site clearing and/or timber harvest. These coordinated activities reduce access, land disturbance and fragmentation, and promote the orderly

² Membership consists of ACFN, ATC, CPDFN, Fort McKay FN, FMFN, and MCFN



management of forest resources. ILM will minimize the size, duration and intensity of industrial footprints.

- **Constraints mapping** – refers to a graphic, computer based tool that integrates surface and sub-surface environmental, geo-technical and cultural information for a lease (or other management area) to illustrate the areas of relative constraint (i.e., sensitivity or, conversely, suitability) to the siting of project components such as plant sites, well-pads, storage areas, and linear facilities. Constraint maps are used to plan the initial project layout, as well as subsequent amendments to the layout. This balances resource recovery and development with reduced impacts to sensitive environmental (e.g., critical wildlife habitat), geo-technical (e.g., unstable slopes) and cultural (e.g., traditional use sites) areas of the development zone.

3. BENEFITS AND COSTS

3.1 Ecosystem Cost/Benefit

- *Minimal Impact Exploration (MIE)* - Compared to traditional methods, MIE avoids standing timber, minimizes soil disturbance, retains root systems and native seed sources, and reduces surface disturbance from LIS by 20% to 60%, and by MISAC by 20 to 30%. This results in the associated benefit of reduced ecosystem fragmentation and effects on wildlife predation and migration patterns. MIE also minimizes aesthetic (visual) disturbances and line of sight effects, and potentially enhances revegetation of seismic lines.
- *Integrated Landscape Management (ILM)* – Main benefits include: reduced disturbance footprint and fragmentation, collaborative reclamation planning and sustainability of timber resources and associated wildlife and traditional use species.
- *Constraint mapping* – Main benefits are the reduced impact on sensitive cultural or environmental features including important traditional use areas, surface water, fisheries, soils, vegetation, and wildlife habitat, as well as important landscape features. The constraint mapping process also has the benefit of involving other stakeholders to contribute to the valuing of on-lease attributes in terms of their relative sensitivity and associated constraint level.

3.2 Economic Cost/Benefit

- *Minimal Impact Exploration (MIE)* - Cost-benefits of Low Impact Seismic include: reduced Timber Damage Assessment (TDA) charges and potential timber rebates from the Provincial government in timber types that are



merchantable. Line construction costs are at par with traditional line cutting methods, and there are no reclamation costs. At less than 3 m line width, drilling costs may increase somewhat, but are expected to decrease as innovation occurs.

Cost-benefits of Minimal Impact Site and Access Construction are reduced Timber Damage Assessment (TDA) charges through the AIPac Rebate Program and, on crown lands, an LIS timber rebate from the Provincial government in timber types that are merchantable.

- ***Integrated Landscape Management (ILM)*** - Costs associated with the joint planning between forestry and oil and gas companies are expected to be more than off-set by the reduction or elimination of timber damage assessments and timber salvage costs. There is the additional reduced cost associated with joint engineering and building access roads and utility corridors.
- ***Constraint Mapping*** - Data collection costs at the lease scale are expected to be minimal as most information is already collected to support the Application and EIA associated with the regulatory approval process.

Geomatics costs will vary with level of in-house computing equipment, software and expertise, versus contracting to experienced service companies. Constraint mapping uses computer-based geographic information systems (GIS) that many companies already have. Costs will include technical support for set-up and integration of information layers. There may also be maintenance costs for updates with new information that may come from monitoring programs, subsequent field studies, or the updating of constraint values to reflect changes in the understanding of site sensitivities or the results of CEMA studies to establish thresholds. There will be the initial and, in some cases, follow-up costs for consultation with directly affected stakeholders (e.g., traditional land users) to ensure constraint map values remain relevant.

4. IMPLEMENTATION

4.1 Implementation Guidelines

The “*Guidelines for the Implementation of Ecosystem Management Tools in the Athabasca Oil Sands Region*” report provides the steps required for a developer to implement the recommended management tools. It is expected that where a company does not have the related in-house expertise to facilitate implementation, services from companies experienced with the application of these tools may be contracted to ensure the effective use of the tools. Some companies within the oilsands areas and other parts of Alberta are already applying all of the recommended tools.



The implementation guidelines, as described, are not intended to limit the further evolution and improvement of the recommended tools. As well, the recommended tools are not meant to limit the development of new tools or the use of other complementary tools to minimize disturbance and reduce fragmentation.

4.2 Potential Barriers of Implementation

Potential barriers to the implementation or delay of implementation have been considered. This section deals with technical or administrative barriers. It does not deal with any institutional constraints, such as slow acceptance within a company to changes in planning or operations. It is assumed that because these tools are currently being used within industry, the experience and pathway for implementation already exists for other companies to adopt.

- *Minimal Impact Exploration (MIE)* – a potential barrier is the availability of the required equipment. This is particularly the case for LIS equipment such as the gyro-mulchers used for 2.5 m width lines. It is expected that the supply of this equipment and related services will grow to meet the increasing demand province wide.
- *Integrated Landscape Management (ILM)* – no apparent constraints for implementation at lease-level.
- *Constraint mapping* – no apparent constraints for implementation at lease-level.